

NORFOLK NAVAL SHIPYARD, MAST HOUSE
(Building 28)
West side of Warrington Avenue between
Shubrick and Breeze Streets
Portsmouth
Portsmouth County
Virginia

HAER No. VA-65-A

HAER
VA
65-PORTM,
1A-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
U.S. Custom House
200 Chestnut Street
Philadelphia, PA 19106

HISTORIC AMERICAN ENGINEERING RECORD

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(BUILDING 28)

HAER No. VA-65-A

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Location: West side of Warrington Avenue
between Shubrick and Breeze
Streets
Norfolk Naval Shipyard
Portsmouth
Virginia

USGS Norfolk South Quadrangle,
Universal Transverse Mercator
Coordinates: 18.384490.4075675

Date of Construction: 1832 - 1836

Present Owner: Norfolk Naval Shipyard
Portsmouth, Virginia

Present Use: Vacant. The building is scheduled
for removal in 1992.

Significance: The Mast House served as the
Norfolk Naval Shipyard's mast con-
struction facility from 1836 to
1904. The building is historical-
ly associated with the shipyard's
early role in the construction and
repair of wooden sailing vessels
for the United States Navy.

Project Information Statement: The Mast House will be removed to
accommodate new construction in
the Norfolk Naval Shipyard.
Recordation of the building prior
to demolition was prescribed as a
stipulation of a project Memoran-
dum of Agreement negotiated be-
tween the Norfolk Naval Shipyard,
the Virginia State Historic Pres-
ervation Office and the Advisory
Council on Historic Preservation
to mitigate removal of the build-
ing. This documentation was
undertaken in accordance with that
agreement.

R. Christopher Goodwin &
Associates, Inc.
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Frederick, MD 21701

The Norfolk Naval Shipyard occupies a site that has been in continuous industrial use since the second half of the eighteenth century. Established in 1767, the shipyard operated as a private concern until its acquisition by the United States government in 1801. The historical development of the facility reflects advances in naval architectural and technology as well as the changing emphasis of United States defense policy. The buildings contained within the Norfolk Naval Shipyard document the progression of maritime technology from the construction of sailing ships to the fabrication of contemporary nuclear powered vessels.

Building Description. Building 28, constructed as the Mast House between 1832 and 1836, is associated with the shipyard's early construction and repair of wooden sailing vessels. The structure retains evidence of its original architectural form although building modifications have been documented for the years 1866, 1919, 1929, 1931, and 1943.

The two-and-one-half story, brick building serves as the eastern terminus in a row of six industrial buildings constructed in the shipyard between 1828 and 1836. The Mast House occupies a paved industrial site bounded on the east by the Southern Branch of the Elizabeth River, on the north by Slip Number One, on the west by Building 28-A, and on the south by Slip Number Two.

The monumental scale industrial building occupies a rectangular ground plan measuring 70'-3" by 450'-3". The symmetrical five-bay-by-thirty-two bay structure is characterized by simplicity in design and construction.

Historic documents suggest that the load bearing masonry building is supported by piles driven into the river bed to a depth ranging between 40 feet to 12 feet.¹ The building's exterior walls rise directly from grade and terminate in a gable roof accented by gable-end parapets. The building's brick walls are 22 inches in depth at the first-story level. The exterior of the structure is faced in Flemish bond laid in lime mortar; exposed interior brick walls are laid in random course common bond. Interior walls integrate shallow brick arch courses above each structural bay division. The exterior of the building is banded by recessed panels located above the first-story bay openings. The exterior building face incorporates three types of cast iron anchor beams. These include double bracket, star, and circular plate designs. The longitudinal building faces include a simple three-course, corbelled brick cornice. A contemporary gutter and downspout drain system has been added to the building at the eaves and corners.

¹Annual Report of Expenditures and Estimates, Record Group 71, Entry 56, National Archives.

Gable-end elevations terminate in a free-standing brick parapet incorporating a slightly projecting cap course. An oculus, infilled with portions of a louvered panel, is located in the north elevation gable. Inspection suggests that straight stack brick chimneys originally rose from the corners of the parapet walls. Two of these chimneys, one on each gable-end elevation, survive.

The building terminates in a gable roof sheathed in slate shingles. The roof is supported by queen post truss system. The roof employs a purlin and rafter system. Rafters are tied to a ridge pole at the ridge line.

The principal entries to the building are housed in the central bay of the north and south elevations. Loading doors are found on all three levels of the gable-end elevations. The central-bay, first-story, south elevation includes a recessed entrance located beneath a brick basket arch. Hinge pins embedded below the arch impost suggest earlier door units that were flush with the exterior wall plane. The existing wooden door unit is depicted in a 1919 architectural renovation drawing of the building. A photocopy of this drawing appears as part of this documentation. The existing entry design includes a pedestrian door flanked by glazed side panels; the door and glazed panels are spanned by a multi-light transom. Second and third level, south elevation bays are defined by painted cut stone lintels and slightly projecting painted cut stone sills. Both central bays are occupied by simple, double-leaf vertical board loading doors. Evidence of a stationary hoist beam is found in the south elevation gable end above the loading door.

An entry design identical to the south elevation is depicted in the 1919 architectural drawing of the north elevation. The central segmental arch entry bay of the north elevation currently includes a contemporary overhead garage door. The multi-light, glazed window and door treatment depicted for the central bays of the upper levels survive on the north elevation.

Secondary entries to the building are located in every third bay of the east and west elevations. Entry bays are supported by painted cut stone lintels. The 1919 drawing of the building depicts a consistent design for all secondary entries on the east and west elevations. This design includes slight recessed double-leaf, fifteen-light wooden doors enframed by simple board surrounds. Several of the east elevation secondary entries survive. The remaining entry bays have been infilled with brick or altered to include double-leaf metal doors. Secondary entries on the west elevation provide access to the adjoining structure, Building 28A. Contemporary, double-leaf metal industrial doors are found on the west elevation.

The symmetrical fenestration pattern of the Mast House is established by bay openings supported by slightly projecting cut stone sills and terminating with cut stone lintels. Three types of window sash survive; none are original to the structure. Twelve-light-over-twelve-light, wooden sash units enframed by simple beaded surrounds account for the majority of the first- and second-story windows. Third level gable-end windows are eight-light-over-eight-light wood sash enframed by simple beaded surrounds. These designs are depicted in the 1919 renovation drawing of the building. A single ten-light double-leaf window enframed by simple board surrounds survives on the first floor of the north elevation. Second-story, east elevation windows include one-light-over-one-light aluminum sash windows.

The overall dimensions of the building, 70'-3" by 450'-3", reflect its original use for mast construction. A modified king post truss system was adopted to support the interior floor system. The use of a truss system made possible the uninterrupted interior space required for mast assembly. In contrast, the post and beam system frequently found in early nineteenth century industrial buildings requires the erection of support columns at regular intervals throughout the building. This grid of columns would not accommodate the spatial requirements of the building. The interior floors of the Mast House are supported by a series of 36 trusses spaced approximately 12' on-center. The original truss system was reinforced over the years. Modifications documented through architectural and engineering plans in the collection of the Norfolk Naval Shipyard include the introduction of reverse bracing in 1931, and the addition of 3/4 metal tie rods and supplemental reverse bracing in 1943. The existing floor finishes include poured concrete on the first floor, diagonal board flooring on the second floor, and canvas covered planks on the upper level.

All three levels of the building originally adopted open floor plans. No evidence of original interior finishes survive, with the exception of deeply chamfered window reveals constructed of exposed brick and squared timber truss supports. The interior of the building contains evidence of two major interior renovations. The first, undertaken in 1919, included the construction of narrow vertical partitions for office and storage space subdivided from the north and south ends of the first and second story. Narrow vertical board partitions and narrow board ceilings found on the third level of the structure are consistent with additions documented for this year. A closed, quarter turn stair with landing was added to the north end of the building. A freight elevator was installed in the vicinity of the stair; the elevator shaft survives. A bridge, connecting Buildings 28 and 29 at the second-story level through a modified west elevation window bay, appears to have been in place by the time of the 1919 renovations.

A sliding, tin-clad fire door was installed in the Mast House as part of the 1919 modifications.

The second phase of interior modification to the building included the subdivision of office spaces from the first floor work area. These office units are temporary in character and constructed using 2" by 4" wall and ceiling framing. Structural members are frequently exposed on the exterior of the unit; interior finishes include fiber board paneling and contemporary sheet rock walls.

The second floor of the build was functionally altered to reflect a double loaded corridor plan. A central corridor running the depth of the building was established through the installation of raised flooring. Work spaces were established on both sides of the central aisle through the installation of open, metal diamond grill ceiling and wall partitions. Cubicle grills are supported by light metal frames. No architectural or engineering plans were uncovered to document the second phase of interior building alteration. Site inspection suggests a ca. 1990 construction date based on building materials and construction.

Mast Fabrication. In 1836, when Building 28 was completed, the American Navy was comprised of wooden sailing vessels. The function of the Mast House was to house the construction of ship's masts. A mast is "a long spar placed amid ships, nearly perpendicularly upon the keelson, and serving to support yards, sails, and rigging, or in steam vessels for signaling, hoisting, and other purposes. The lower end, or heel, of a mast rests in a step on the keelson."²

Wooden mast making was not mechanized; the process was labor-intensive and required large areas of unobstructed space. Mast making was similar to the process for hewing timbers. Oak and pine were the two species preferred for the masts of naval vessels. Smaller masts were constructed from single trees. Logs were elevated above floor level on a series of wooden blocks. The timber was squared with, and reworked into an octagon shape with an adze. Masts were finished by adze again to level 16 faces. Corners were planed smooth, and plane marks were removed by sanding.

As the eighteenth century progressed, scarcities of suitable timber for the single-log construction of large masts led to the development of a new system of mast construction. The system was perfected in the late eighteenth century by English Naval Surveyor,

²Van Gaasbeek, *A Practical Course in Wooden Boat and Ship Building*, 186.

Sir Robert Seppings, as old growth timber from North American sources was less accessible to European markets. European naval engineers were forced to utilize smaller timbers found elsewhere.³ Under the Seppings system, sections of heart wood in varying lengths were combined. First, the timber was squared leaving rectangular projections known as "coaks." The coaks were carefully cut to fit mortises in the adjoining sections of the mast. Tight joints were critical to the process. Gaps in the mast surface weakened or strained the mast and created conditions for water penetration and wood rot.

Once the coaked pieces were joined, the outer surfaces were worked to achieve a circular finished form. Iron rings next were heated and fitted on the mast. A liberal coating of grease was applied to the timber to prevent damage to the wood and to facilitate positioning of the iron bands. The secured heated rings were cooled with cold water to contract the metal which formed a tight band surrounding the wood. The number of iron bands required to secure a mast was proportional to the number of segments in its construction. The larger the number of coaked segments in a spar, the smaller the distance between the rings on the mast. By the late eighteenth century, masts for the English Navy with rings spaced at approximately four foot intervals were recorded.⁴

Once the iron rings were cooled, a wood facing was secured to the forward face of the mast to discourage chafing and damage to ship sails. The facing was applied in three sections running the length of the mast. The center section was known as the "front fish" and the side pieces were known as the "fillings." The facing pieces were shaped over the rings to ensure consistent tight joints the length of the mast. Finally, navy masts were usually included between the iron rings, "the wolding...thirteen turns of rope nailed with wolding nails, which had leather washers under their heads."⁵ A pre-eminent author on shipbuilding, David Steele, wrote in 1794 that this system "composed of many united pieces of the soundest part of trees...[is] stronger than when made of a single tree, and less liable to spring."⁶ These methods of mast

³Howard, *Sailing Ships of War: 1400-1860*, 236.

⁴Howard, *Sailing Ships of War: 1400-1860*, 199.

⁵Underhill, *Masting and Rigging the Clipper Ship and Ocean Carrier*, 55.

⁶Steele, *Steele's Elements of Mastmaking, Sailmaking, and Rigging*, 27.

construction have remained virtually unchanged into the present day.⁷

Historical Context. The Norfolk Naval Shipyard (NNSY), Portsmouth, Virginia presently covers an 811-acre parcel located on the west bank of the Southern Branch of the Elizabeth River, in Portsmouth, Virginia. The shipyard was founded in 1767 by Scottish immigrant Andrew Sprowle. The private shipyard, which Sprowle named Gosport, was located one-half mile south of the City of Portsmouth. Sproule, a Loyalist, forfeited his title to Gosport to the Commonwealth of Virginia following The American War of Independence.⁸ Although Virginia held title to the land after the Revolution, the Gosport shipyard continued to operate as a private enterprise. The property was not converted to military use due to the lack of public support for maintaining a standing armed force. This policy resulted in disbanding the Continental and Virginia Navies.⁹

The need for mobilized national defenses was recognized by the close of the eighteenth century. In 1794, Congress established the Department of the Navy and authorized the construction of six frigates at six different shipyards. One of the vessels was the U.S.S. Chesapeake built at Gosport, Virginia.¹⁰

The first Secretary of the Navy, Benjamin Stoddart, recognized that it would be more cost effective for the Navy to purchase its own shipyards than to rent space at privately owned facilities. Stoddart convinced Congress to fund the purchase of six established shipyards, including the facility at Gosport. On June 15, 1801, title of the 15.25-acre shipyard was transferred from the Commonwealth of Virginia to the United States for \$12,000.00¹¹

The original boundaries of the Gosport Navy Yard were the South Branch of the Elizabeth River to the east, Lincoln Street to

⁷Howard, *Sailing Ships of War: 1400-1860*, 236

⁸Butt, *A Brief History of Norfolk Naval Shipyard*, 1.

⁹Butt, *A Brief History of Norfolk Naval Shipyard*, 3.

¹⁰Butt, *A Brief History of Norfolk Naval Shipyard*, 3; Stewart, "Norfolk, VA., Naval Shipyard, 1767-," in *United States Navy and Marine Corps Bases: Domestic*, ed. Paolo E. Coletta, 387.

¹¹Butt, *A Brief History of Norfolk Naval Shipyard*, 4; Lull, *History of the United States Navy-Yard at Gosport, Virginia*, 18.

the North, Second Street to the west, and a creek, now Slip Number One, to the south.

The first buildings at Gosport constructed to accommodate naval ship construction were a spar shed, a timber shed, and river front wharves.¹² In 1803, Congress appropriated \$10,000.00 for improvements to the Gosport Navy Yard, specifically for the construction of a warehouse and timber shed. The superintendent of the yard, Daniel Bedinger, subsequently authorized the construction of a brick perimeter wall, a brick dwelling for himself, a timbershed, and a warehouse. The warehouse was constructed so poorly that it was razed soon after construction to prevent its collapse.¹³ An office, marine barracks, a brick storehouse, a powder magazine, and a "smithery" were soon added to the shipyard.¹⁴

In 1825, Secretary of the Navy Samuel Southard authorized a study of the Navy's shore facilities to identify potential sites for the department's first two drydocks. The cost of land acquisition required for dry dock construction persuaded Southard initially to abandon the project. Plans for Navy dry dock construction were revived due to arguments presented by the commandant of the Gosport yard, Commodore James Barron. Barron argued that construction delays at the yard were due to the lack of a dry dock. Water, and toredo worms that inhabited it, led to the rapid decomposition of wooden wharves, which in turn left submerged remains that impaired navigation.¹⁵

In 1826, following a survey of Portsmouth, New Hampshire, Boston, New York, and Gosport, Congress selected the Boston and Gosport shipyards as the location for the Navy's first drydocks. The necessary improvements to the yards were inaugurated on March 3, 1827, when Congress passed "An Act for the Gradual Improvement of the Navy of the United States," that provided the Navy with

¹²Lull, *History of the United States Navy-Yard at Gosport, Virginia*, 18.

¹³Lull, *History of the United States Navy-Yard at Gosport, Virginia*, 19.

¹⁴Butt, *A Brief History of Norfolk Naval Shipyard*, 4; Hirrel "Insert Article Title," in Insert Report Title, Insert editor, pg no.

¹⁵Stewart, "Norfolk, VA., Naval Shipyard, 1767-," in *United States Navy and Marine Corps Bases: Domestic*, ed. Paolo E. Coletta, 390.

\$500,000.00 per year for a period of six years to upgrade facilities.¹⁶

The Gosport site was expanded. On March 29, 1827, the navy-agent, Mr. King, reported that "the lands from Jefferson Street, along the line of Third Street to the county road, and thence down to the water, could be purchased for \$7,825."¹⁷ King was authorized to purchase the parcel and to procure as much land to the south of the yard as he deemed necessary. The Board of Naval Commissioners developed a plan for the expansion of the Gosport yard during the winter of 1827, based on a facility survey conducted by a Colonel Baldwin. Forty-three town lots were purchased subsequently by the Gosport navy-agent between 1826 and 1829. The total purchase price was \$23,622.00¹⁸

In November 1828, development plans for the Gosport Navy Yard were approved and work began. The plans included reclaiming parts of the river and the timber dock, lining the fill with stone walls, and constructing new buildings on the reclaimed land. Building 28 was constructed as the Mast House, and built almost entirely on land reclaimed from the river. The construction contract records for Building 28 have not been uncovered. Masonry work for Building 29 was contracted to local masons Jefferies Wilkman and John A. Metz in June 1829; the craftsmen may have worked on Building 28 as well.

Construction estimates for Building 28 were not prepared "as it was out of our power to come to anything like the precise cost of such an edifice in such a place; the site being, with the exception of a few feet on the west side, covered by the river, and the bottom of unequal tenacity; the piles, in some places, driving forty feet and in others twelve or fifteen...additional expense has also been incurred, by laying the second story floor on trusses instead of beams, by which stantions or pillars, are dispensed with; throughout its whole length, their whole space saved, and an uninterrupted passage over the whole lower floor secured."¹⁹ In 1836 yard Commander Lewis Warrington reported that Building 28, the

¹⁶Lull, *History of the United States Navy-Yard at Gosport, Virginia*, 30.

¹⁷Lull, *History of the United States Navy-Yard at Gosport, Virginia*, 30-31.

¹⁸Lull, *History of the United States Navy-Yard at Gosport, Virginia*, 31.

¹⁹National Archives, *Annual Report of Expenditures and Estimates: 1836-1837*, Record Group 71, Entry 56.

Mast House, was completed at the cost of \$101,004.74.²⁰ Building 29, a Boat House located west of Building 28, also was completed at that time. The timber dock was under construction.²¹ Two ship houses, office buildings located in the vicinity of the north wall, the commandant's house, and sections of the marine barracks were the only pre-1827 buildings retained in the shipyard expansion project.²² After 1836, the antebellum development of the shipyard progressed slowly. Funding was secured through Congress on a project to project basis.

Shortly after the bombardment of Fort Sumter on April 12, 1861, the Commonwealth of Virginia seceded from the Union. The state claimed the Gosport Navy Yard as its rightful possession. The United States Secretary of War Gideon Welles, fearing that Gosport would fall into the hands of Virginia troops, dispatched a contingent of 100 Marines from Washington, D.C., on April 19, 1861, under orders to destroy the facilities at Gosport and retrieve the ships stationed there. The marines arrived as the commander of the Navy Yard, Charles McCauley, was boarding the *U.S.S. Cumberland* in Hampton Roads, following the evacuation of the base. The marines landed at the yard, set charges to destroy the facilities, and burned the scuttled ships in the Elizabeth River. Several of the charges did not detonate; some contemporary reports credit Confederate sympathizers among McCauley's junior officers as responsible for the incomplete demolition of the yard.²³

The Virginia troops who occupied the Gosport Navy Yard on April 21, 1861, found the yard badly damaged, but serviceable. The new Confederate paymaster, William H. Peters, was detailed to compile a list of the serviceable buildings. This list has not been located, but an adjunct report prepared by Peters noted that several substantial workshops were undamaged and the drydock was operational. The ironclad *C.S.S. Virginia* was constructed in the dry dock from the remains of the *U.S.S. Merrimac*, one of the ships burned to the water line during the Union evacuation. In March 1862, the *C.S.S. Virginia* engaged the iron-clad *U.S.S. Monitor* in nearby Hampton Roads and marked the end of the sailing navy era.

²⁰See Appendix 1 for Building 28 yearly Congressional appropriations, 1832-1836.

²¹National Archives, *Annual Report of Expenditures and Estimates: 1836-1837*, Record Group 71, Entry 56.

²²Lull, *History of the United States Navy-Yard at Gosport, Virginia*, 39.

²³*Official Records of the Union and Confederate Navies in the War of the Rebellion*, Series I, Vol. V, 221.

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Union troops landed in the Tidewater area to inaugurate General George McClellan's Peninsular campaign in May 1862. Engaging in a strategic withdrawal, Confederate General Joseph Johnston ordered the Gosport Navy Yard abandoned and destroyed. On May 10, the Confederate forces burned the facility. The Union contingent that occupied the yard following the Confederate withdrawal found all of the buildings, with the exception of the officers quarters, substantially fire damaged.²⁴ John W. Livingston was appointed commander of the yard, rechristened the U.S. Navy Yard, Norfolk, Virginia, on May 20, 1862. In early June, he reported to Joseph Smith, Chief of the Navy's Yards and Docks Bureau, that the Marines assigned to protect the base were housed in tents because "there are no buildings in this yard suitable to house them, but the two buildings composing the first Lieutenants and Master's houses." The first priority of the new commander was to return the base to operational status, and comprehensive repair of the fire damaged buildings was not part of this priority. An albumen print of the shipyard, executed by Alexander Gardner in December 1864, depicts damage to the yard in the vicinity of the Mast House. The building shell of the Mast House is intact. A photocopy of this print accompanies this documentation.

In January 1866, the first post-war commandant of the U.S. Navy Yard, Norfolk, Commodore R.B. Hitchcock, reported that the quality of the wartime repairs to the yard was very poor and recommended building replacement. An 1866 map of the U.S. Navy Yard indicated that the Mast House, along with other structures, was damaged during the war. The Mast House was repaired by January 1866 at the time the map was printed. Adjoining Buildings 29, 30, and 31 sustained greater damage. Major repair work was undertaken at a cost of over \$100,000.00 Commodore Hitchcock directed that former one-story buildings be expanded to two-story structures during the rebuilding process. Building 29, located west of the Mast House, was one of the structures expanded to two stories in February 1866.²⁵

During the post-war period, the U.S. Navy experienced an increased demand for shore facilities. The expansion of the fleet during the Civil War occurred without a commensurate increase in the construction of shore facilities to service the larger number of vessels. The shore establishment was less capable of serving the fleet than during the pre-war years due to the extensive damage suffered at Norfolk and Pensacola Navy Yards, coupled with the

²⁴*Official Records of the Union and Confederate Navies in the War of the Rebellion*, Series I, Vol. VII, 342.

²⁵"Letters Received from Commandants of Navy Yards - Norfolk," Record Group 71, National Archives.

closing of the shipyard in Memphis, Tennessee. The 1865 Annual Report to the Secretary of War identified the lack of space at Navy shore facilities as hampering the ability of the fleet to operate effectively. Exacerbating the problem was the rise of iron-clad technology. All of the existing Navy Yards were designed for the construction and maintenance of a wooden fleet.²⁶ The national debt created by the prosecution of the Civil War restrained Congress from appropriating funds to improve Navy facilities.²⁷ In 1874, the Senate Committee on Naval Affairs was asked by Congress to study the feasibility of Naval Yard closures. The committee recommended the expansion of the Norfolk yard citing its strategic location. In 1883, a similar committee was convened by Congress. The committee noted that U.S. Navy Yard Norfolk, had the capability to build and repair wooden ships of all sizes, but was unable to construct, or even drydock, the new iron-hulled Chicago class vessels.

During the early 1880s, the United States moved to modernize its fleet. U.S. Navy Yard, Norfolk, launched its first steel-sheathed cruiser, the *U.S.S. Raleigh*, in 1892. The launching corresponded with the Inter-national Columbian Naval Rendezvous in Hampton Roads, Virginia, celebrating the 400th anniversary of European awareness of the Americas. That same year, the keel was laid for the *U.S.S. Texas*, a second-class battleship with a steel hull and powered exclusively by steam.²⁸ The *U.S.S. Texas* was launched in 1895. The following year, a map of the yard was delineated, and Building 28 was still in use as a Mast House for a wooden U.S. Navy.

The mission of the Navy Yard at Norfolk prior to the Spanish-American War was to build, supply, and maintain the United States fleet. After the war, the traditional role of naval yards were expanded and altered by the demands of the steel navy. At Norfolk, land-based schools for sailors were established. Between 1903 and 1911, a third drydock was constructed. Other structures were erected as the role of the yard continued to expand. Rear-Admiral Purnell Harrington, commander of U.S. Navy Yard, Norfolk, complained to the Board of Navy Yard Plans in October 1904 that the functions housed in the yard were ill-organized and scattered throughout the base. Harrington recommended re-organization. To support his recommendation, he provided a building-by-building list

²⁶Hirrel, "Military Technology." Ms. in Progress. R. Christopher Goodwin & Associates, Inc., 1992.

²⁷Hirrel, "Military Installations: An Overview." Ms. in Progress. R. Christopher Goodwin & Associates, Inc., 1992.

²⁸Butt, *A Brief History of Norfolk Naval Shipyard*, 8.

of the operations housed at the shipyard accompanied by a description of the operational responsibility. On the date of the assessment, October 14, 1904, Building 28 was not identified as housing the mast construction division of a sail-powered navy. During the eight years between the preparation of the 1896 map and the 1904 yard assessment, the Mast House was converted to the Mast and Spar Shed, the Pattern Makers Shop, a Storehouse for Finished Boats, the offices for the Office of Shipkeepers, and the storeroom for the Construction and Repair Division's cellulose material. As a result of the 1904 assessment, a reorganization of the base was initiated.

The United States entry into the First World War in 1917 increased the shipyard production and limited the mission of the United States Navy Yard, Norfolk, Virginia. Fleet support and shore training functions were transferred to a new installation at Sewell's Point named the Norfolk Naval Operating Base. Commander C.F. Stansworth noted in his book, *Naval Bases of the World*, "The dredged channel of the Elizabeth River from Hampton Roads to Norfolk, eleven and three fourths miles is crooked, congested with commerce, and it has been necessary to establish a supply depot at Hampton Roads, entitled 'Operating Base'."²⁹ From this point forward, the function of the shipyard was confined to ship construction and repair. While many of the facility's operations were transferred to Sewell's Point, war demand created a need for more industrial space and a new round of shipyard construction began. Structures built at the yard during the First World War period included a new power plant, a machine shop, a foundry, a paint shop, oil storage tanks, a pattern shop, a forge shop, a galvanizing plant, a shipfitters building, several storage sheds, and other structures.³⁰

In 1919, a plan of Building 28 depicting the building design was drawn. The majority of the ground floor consisted of open space, the exception being two small partitioned areas in the north and south ends of the building, the north of which was used for storage. The second floor also included small partitions. Those in the north end of the building included an office, two store rooms, bathrooms, and a lunch area. The partition in the south end of the building was used for storage; an upper level balcony also was utilized for storage. The remaining second floor space was undivided and housed the shipyard Sail Loft.

²⁹Navy General Files, Record Group 71, "1901-1925," Box G, National Archives.

³⁰Stewart, "Norfolk, VA., Naval Shipyard, 1767-," in *United States Navy and Marine Corps Bases: Domestic*, 394.

During the era of wind propulsion, the duties performed in the sail lofts of navy yards were sail making and repair. When the Navy ceased placing masts on steam-driven vessels as auxiliary power in the event of engine failure, the duties performed in the sail loft changed. Rope product construction, such as assembling hammocks and rigging loops; the fabrication of bumpers for ships; and, the sewing of various canvas items, such as hatch and life boat covers, were the most common activities carried out by the sail loft crew.³¹

With the cessation of hostilities, and the passage of the 1922 Washington Naval [limitation] Treaty, labor requirements at the U.S. Navy Yard, Norfolk, Virginia, dropped below pre-war levels. Reduced production was accompanied by a cessation of physical plant expansion. In 1929, the name of the Navy Yard was changed to Norfolk Navy Yard, Portsmouth, Virginia. Two years later, Building 28 was inspected for structural integrity, and as a result, 13 trusses under the second floor were supplemented with 6" x 8" reverse braces and 12" x 12" support posts. By 1931, a machine shop was housed in a partitioned area at the northwest end of the ground floor.³² Construction of new vessels was resumed at the yard in 1933, as a result of the National Industrial Recovery Act (NIRA), a New Deal program. The NIRA called for the construction of nine destroyers at the Norfolk Navy Yard, five of which were completed by the time war again broke out in Europe in 1939.³³ During the Second World War, the truss system of Building 28 was again re-enforced; in 1943, new beams were bolted onto weak original beams throughout the structure to strengthen them. With the conclusion of the Second World War, Norfolk Naval Shipyard was renamed and the labor force was downsized. On December 1, 1945, the Norfolk Navy Yard was renamed the Norfolk Naval Shipyard, Portsmouth, Virginia.

In 1949, Building 28 was altered. A temporary partition that had been placed in the ground floor of Building 28 for storage space was removed, and a permanent partition was constructed. In that year, approximately one-eighth of the north end of the ground floor of Building 28 was used for the Rigging [formerly called "Sail"] Loft Shop and Storage. The south quarter of the building

³¹Mr. James Mintz, telephone conversation with author, April 28, 1992.

³²22 January 1931. Plan of Building 28: Strengthening 13 Trusses Under Second Floor.

³³Butt, *A Brief History of Norfolk Naval Shipyard*, 11; Stewart, "Norfolk, VA., Naval Shipyard, 1767-," in *United States Navy and Marine Corps Bases: Domestic*, 395.

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housed the Yard Craft Shop and an area for packing household effects. The space between these two areas was used for general storage.³⁴

During the Korean Conflict, the Norfolk Naval Shipyard served mainly as a repair station. During the post-conflict years, employment dropped slightly to 12,000 workers and remained constant through the decade as the facility overhauled many of the ships built during World War II. An electronics building was erected that gave the shipyard the ability to construct and service nuclear vessels.³⁵

Building 28 was reprogrammed in 1954. The storage space adjacent to the household effect packing area was converted into a cleaning and painting shop.³⁶ By 1958, this shop and the rest of the storage space had become part of the Ships Outfitting area.

The Mast House was designed to house a process that became obsolete at the turn of the twentieth century. The abundant open space required for mast production was converted to a variety of uses during the twentieth century. By 1983, Building 28 operated as general warehouse facility. The most recent record detailing the use of the structure was prepared in September 1991. At that time, Building 28 contained divisions of the Sheet Metal Shop, Electrical Shop, Wood Working Shop, the Nuclear Repair Shop, and sections of the Waterfront Operations Division. Both Building 28 and adjoining Building 28-A housed divisions of the Temporary Services and Central Tool Shops.

The one function that remained constant during the modern era was the utilization of the second floor of Building 28 as the Rigging Shop. Mr. James Mintz, who worked in the Planning and Production offices at the Norfolk Naval Shipyard between 1941 and 1969, recalled that at the time of his retirement, the Rigging Loft ceased active production. By 1991, the Rigging Shop presence in Building 28 was limited to offices.

³⁴footnote for 4-3-1949 map,

³⁵Stewart, "Norfolk, VA., Naval Shipyard, 1767-," in *United States Navy and Marine Corps Bases: Domestic*, 396.

³⁶Plan of (1954 cleaning and painting construction).

APPENDIX I

Building 28 Congressional Appropriations for Construction

Year	Appropriation
1832	\$24,000.00
1833	\$12,399.00
1834	\$9,000.00
1835	\$17,100.00
1836	\$1,500.00

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